

Update and Outlook for 2005 of Florida's BMP Program for Vegetable Crops¹

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With the onset of the implementation of the BMP program for vegetable crops, growers may be interested, concerned and confused about how the program will affect their production practices. This publication is meant to answer some of these concerns and provide an update on the status of the BMP manual for vegetable crops, with an emphasis on the rule making progress and acceptable strategies for nutrient management.

BMP Manual for Vegetable Crops

Since the 2003 update (Simonne et al., 2003), there have been some changes made in the BMP table of contents. The new table includes evaluation and implementation, conservation practices, pesticide management, and erosion and sediment control (Table 1).

Each of these topics is further broken down into sections pertaining to each topic. Since the entire manual is over 150 pages in length, the best place for a grower to start is the table of contents.

How to Select BMPs that Apply to Specific Operations

BMP selection for a vegetable operation is based mainly on farm location and type of production system; bare ground vs. plastic culture, drip or seepage irrigation, permanent or temporary farming operation. The decision tree in the "BMP Evaluation and Implementation" section (pages 4-10) asks the following five questions:

1. Has a TMDL/BMAP (Total Maximum Daily Load/Basin Management Action Plan) been developed for your watershed?
2. Are you a temporary farming operation?
3. Do you grow on plastic mulch?
4. Do you irrigate?
5. Do you farm in the north Florida region, the C139 basin, or the Miami-Dade area?

Based on the answers, the decision-tree guides the reader to different sets of BMPs (Simonne, 2004) (Fig. 1).

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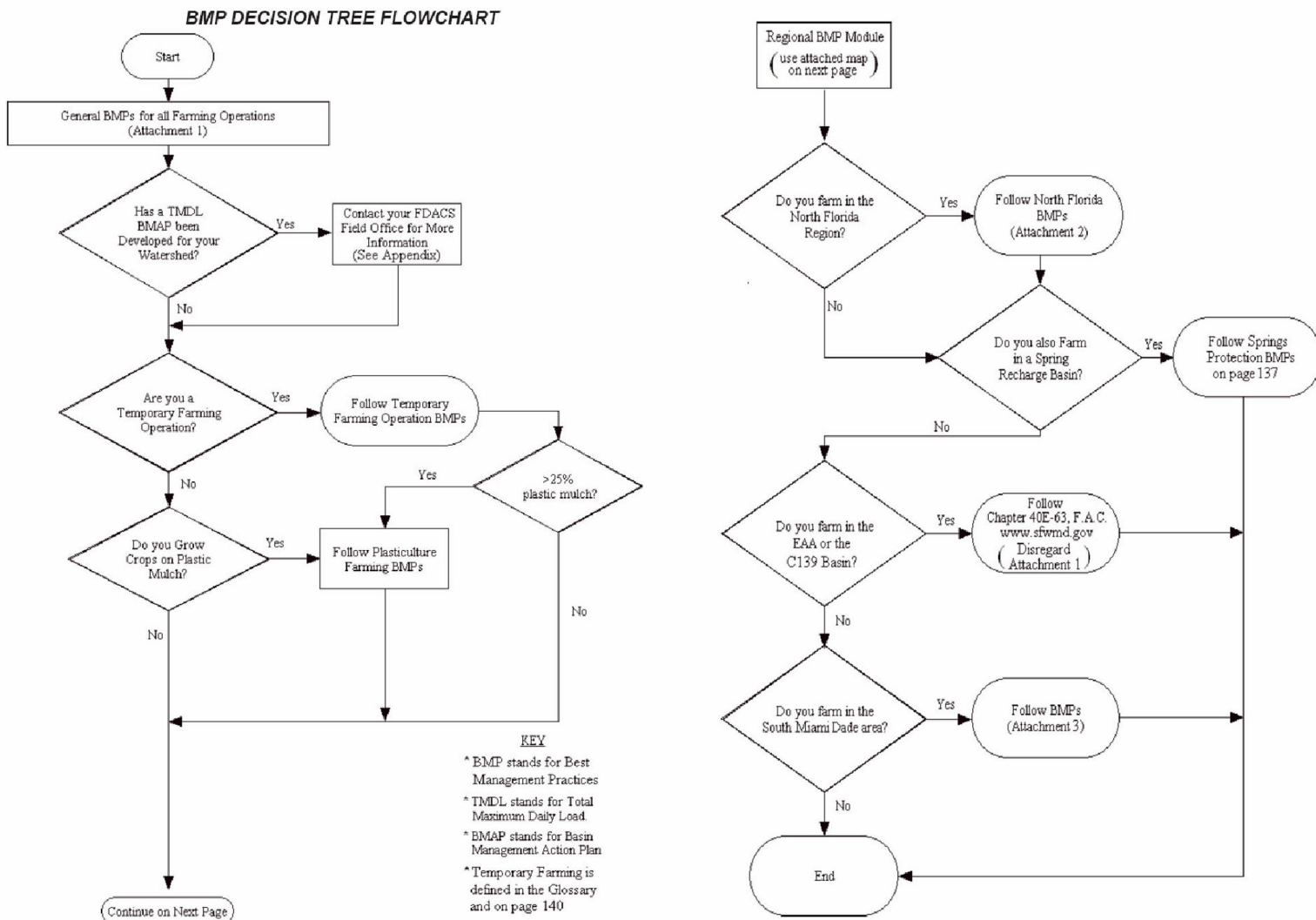


Figure 1. Decision tree in the "BMP Evaluation and Implementation Section" used to select BMPs for specific crop and geographical area of Florida.

Current Status of the BMP Manual

Between November and December 2004, rule-making seminars throughout the state were staged to get feedback from growers and crop consultants to help design the BMP manual, which is scheduled to be officially adopted some time in March of 2005 by reference in the Florida Administration Code 5M-6. Adopting by reference allows for changes to the manual to occur without changing the code. The rule can be found on the FDAC web site at <http://www.doacs.state.fl.us/pi/regulations.html>, follow the link at the bottom of the page under the DPI Rules: FDACS ~All of Chapter 5.

The ultimate goal of the BPM program is to have 50% participation within the state; but it is not clear if the 50% goal refers to the amount of acreage or commodities. This goal will be adjusted depending on the condition of each water basin on a case-by-case basis.

How to Officially Join the BMP Program

NOTE: Currently (March 2005), it is not possible to sign up for the BMP program because there is no one ready to accept applications pending March approval.

Growers wishing to sign up for the BMP program need to follow the instructions in the

appendix beginning on page A1. They will need to fill out the Vegetable Best Management Practices Check List, and then a Nutrition and Irrigation Check List, then next the Conclusion and Results page. These pages are meant to assist growers in identifying areas where they are in compliance and areas where they need improvement. Growers then need to fill out the Candidate BMP checklist, and finally the Notice of Intent to Implement. Once the Notice of Intent to Implement is completed, it should be sent to FDACS-OAWP, Suite 200, 1203 Governors Square Boulevard, Tallahassee, FL 32301.

It is strongly suggested to keep all checklists in a file along with a copy of the Notice of Intent to Implement. After official adoption, growers can access all forms necessary by logging onto <http://www.floridaagwaterpolicy.com/> and following the link to Best Management Practices. Here, growers can scroll down to Vegetable & Agronomic Crops and open a PDF version of each of the forms.

Benefits to Growers for Having a BMP Plan

Once a Notice of Intent to Implement is filed, there are benefits to the grower including protection against state and federal law suits, financial reimbursement for implementation of BMPs, and eligibility for future cost share programs. Currently, there are Florida Statutes in place for each of these benefits:

Florida Statutes Assistance with Implementation: (Florida Statutes 403.067 [7] [d])

Eligibility for Cost Share Programs: (F.S. 570.085 [1])

Waiver of Liability: (F.S. 376.307).

Questions Still Unanswered as of February 2005

1. Target level of participation (see Status of Manual above).
2. It is still unclear at what the program's 50% goal is directed towards.

3. Efficiency of BMPs and their impact on water quality.
4. The BMP program is still in its infancy, and it will take time and implementation of the practices to determine its impact on water quality.
5. Monitoring of BMP.
6. Currently, there is no way for the BMP program to monitor the program at the farm level.
7. Loop holes: consultants and private soil testing labs.
8. Advice given by consultants and soil labs is not always consistent with IFAS recommendations. Currently, there is no way to monitor soil lab or consultants' advice. For the program to work, both soil labs and consultants need to be steering their clients toward the same goal as the BMP program.

Acceptable Strategies for Nutrient Management

BMP strategies for nutrient management were developed from the concept of applying the crops' nutritional requirement (CNR), as based on IFAS recommendations and soil tests. The BMP manual recommends that growers view recommended rates as a component of the overall nutrient management rather than focusing on the rates suggested (Olson & Simonne, 2005). In adhering to BMPs, growers have three basic options:

1. Use IFAS recommendations or alternative recommendations from a credible research institution.
2. Use IFAS recommendations as a starting point, employ additional BMPs using BMP assessment checklist.
3. Farmers in significantly impaired basins must follow recommendations in the Basin Management Action Plan (BMAP).

Technical Points

What is in the Recommendations?

Supplemental fertilizer applications are meant as a protective measure for growers following IFAS recommendations; they are not meant to be added to the initial fertilizer application. There are two main growing conditions where supplemental fertilizer applications may be required: leaching rain and extended harvest periods. Leaching rains are described as 3 inches in 3 days or 4 inches in 7 days. Supplemental applications should be applied after the leaching rain or prior to harvest when it has been determined necessary and not as a preventative measure early in the season. In both cases, IFAS recommends banding or swathing just ahead of the growing root system at a depth that is still in contact with moisture. Specific information on supplemental fertilizer application can be found in the BMP manual or in the Vegetable Production Handbook available at <http://edis.ifas.ufl.edu/> TOPIC_GUIDE_Vegetable_Production_Guide_for_Florida.

Fertilizer Recommendations Based on Linear Bed Feet

With plastic mulch becoming widely used in vegetable crops, linear bed feet are also becoming widely used. Linear bed feet (LBF) work off the concept of fertilizing the bed, not the entire acre, thus the fertilizer rate is based upon the actual cropping area (Simonne et al., 2002). The fertilizer recommendations are expressed in Lb/A, rates of fertilizer are expressed as Lb/100 LBF.

Double Cropping

Double cropping serves multiple purposes because it allows growers to reuse plastic mulch, previous fumigant, and any residual fertilizer left by previous crop. The practice of adding extra fertilizer to the first crop, in foresight of aiding growth of the second crop, is strongly discouraged. The extra fertilizer could be leached from the root zone or cause soluble-salt damage to the first crop. In fertilizing the second crop, an adjustment to the rate per acre needs to be made, but the rate per 100 LBF remains the same. To get the corrected rate per acre,

you multiply by a correction factor: the number of LBF used divided by the number of bed feet present. An example is growing tomatoes after strawberries; strawberries are grown on 4 ft centers, and tomatoes are grown on six foot centers. To find the correction factor, you divide 6/4 to get 1.5 then multiply the recommended pounds per acre by the correction factor to determine correct fertilizer rate (Olson & Simonne, 2005).

What is to Come?

The question still remains if BMPs will reduce leachate to levels determined by total maximum daily loads (TMDL). It is generally agreed that BMPs are more of a tool towards accomplishing TMDL rather than the complete answer. Instead, other programs such as the basin management action plan (BMAP) and minimum flow legislation (MFL) need to be in action along with BMPs in order to reach the required TMDL set by the Federal Department of Environmental Protection.

References

Florida Department of Agriculture and Consumer Services. 2003. Florida Vegetable and Agronomic Crop Water Quality BMP Manual. Fla. Dept. of Agr. Cons. Serv., Tallahassee, Fla. Jan. 6, 2005.

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TOPIC_GUIDE_Vegetable_Production_Guide_for_Florida

South Florida Water Management District. 2002. Minimum Flows and Levels Web Site. Included on this web site are a power point presentation and links to information pertaining to specific bodies of water. <http://www.sfwmd.gov/org/wsd/mfl/index.html>

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Table 1. Table of contents, as of March 2005, of the BMP manual that applies to vegetable production in Florida.

Sections: General Area / Area of Application	Contents of Section: BMPs
1. Introduction	Outlines the history and purpose of the program.
2. BMP Evaluation and Implementation	Gives a general outline and how to use the manual, including information on developing a BMP implementation plan. In this section, there are decision tree flow charts designed to help growers identify BMP applicable to their operations.
3. Pesticide Management	Explains integrated pest management and how to manage pesticides under BMPs.
4. Conservation Practices and Buffers	Section is divided into different aquatic ecosystems and the practices necessary to help protect water quality by preventing leaching runoff.
5. Erosion Control and Sediment Management	Section focuses on techniques that prevent the movement of soil from agricultural fields.
6. Nutrient and Irrigation Management Pages 74-120, Sections 26-42	Soil testing and pH, water table observational wells, precision agriculture, crop establishment, Double cropping in plasticulture system, Proper use of organic fertilizer materials, Controlled-release fertilizers, optimum fertigation management/application, chemigation/fertigation, tissue testing, water supply, tailwater recovery, tailwater refuse and waterborne plant pathogens, Irrigation system maintenance and evaluation, irrigation scheduling, Frost and freeze protection, water control structures.
7. Water Resources Management	Update industry on the most common irrigation and storm water management techniques available to date. In this section, there is a subsection focusing on plasticulture.
8. Seasonal or Temporary Farming Operations	BMPs to address issues related to seasonal farming.
9. Glossary	Definitions of words used within manual.
10. Appendices	<ul style="list-style-type: none"> A. BMP B. Tables C. Soil testing information D. Incentive programs for agriculture E. Federal Department of Agriculture and Consumer Services (FDACS), http://www.doacs.state.fl.us/